

C405.2 Mandatory Lighting Controls – shall comply with one of the following:

1. Lighting Controls Sections C405.2.1 through C405.2.6
2. Luminaire Level Lighting Controls (LLLC) Sections C405.2.1, C405.2.4 and C405.2.5

Exceptions: Lighting controls are not required in areas:

- Designated as security or emergency areas that require continued lighting
- Interior exit stairways
- Interior exit ramps and passageways
- Emergency egress lighting that is normally off

Automatic off controls

C405.2.1

Occupancy sensor controls

- Auto off within 20 min (C405.2.1.1.1)
- Manual turn off (C4-5.2.1.1.3)

Primary exceptions:

- Dwelling units
- Designated as security or emergency areas that require continued lighting
- Interior exit stairways
- Interior exit ramps and passageways
- Emergency egress lighting that is normally off

Required in:

- Classrooms
- Lecture
- Training rooms
- Conference
- Meeting
- Multipurpose rooms
- Lounge
- Break rooms
- Enclosed offices
- Open offices
- Restrooms
- Storage rooms
- Locker rooms
- Enclosed spaces 300sq ft or less
- Warehouse storage areas

C405.2.1.1.2

Manual ON or partial Auto ON

- Manual ON or Auto ON to < 50%

Primary exceptions:

- Public corridors, stairways, restrooms, primary building entrance, lobbies
- Where manual ON would endanger the safety or security of occupants

C405.2.1.2

Occupant sensors in warehouses

- Automatically reduce power by > 50% when unoccupied
- Independent aisle controls

C405.2.1.3

Occupant sensors in open office

- Control zones no greater than 600sq ft
- Reduce power by > 80% when unoccupied
- Full Off when unoccupied complies
- Daylight controls only work when occupied

Primary exceptions:

- Open office space < 300sq ft must comply with section C405.2.1.1

C405.2.2

Time-Switch controls

- Requires manual override (C405.2.2.2)
- Override for less than 2hrs
- Override not larger than 5,000 sq ft

Primary exceptions:

- Where manual control provides light reduction per C405.2.2.2
- Patient care spaces
- Where auto OFF would endanger safety of occupant
- 24 / 7 Lighting
- Shop and lab classrooms
- Mall concourse, auditoriums sales, areas, manufacturing facilities and sports areas allow override to be > than 2hrs and control of < 20,000 sq ft

Required in:

Areas where occupancy sensor is not used, time-switch must be used

Manual controls

C405.2.2.2

Manual Light-reduction controls

- Manually reduce lighting uniformly >50%

Primary exceptions:

- Daylight responsive control zones
- Corridors, lobbies, electrical rooms and mechanical rooms
- One luminaire with < 100W
- Spaces <0.6W per sqft

Required in:

Areas where occupancy sensor is not used, time-switch must be used

C405.2.5

Manual controls

- Occupants have ready access
- Controlled lighting is visible

Primary exceptions:

- Remote mounting is permitted if controlled lighting status is indicated on manual control station

Required in:

All spaces where required by this code

Daylight responsive controls

C405.2.3

Daylight-responsive controls

- Sidelit zones controlled independently of toplit zones
- Continuously dim lighting in offices, classrooms, laboratories, library reading rooms
- Configured to completely shut off controlled lighting
- Zones facing different cardinal orientations shall be controlled independently

Primary exceptions:

- Spaces where patient care is directly provided
- Specific application lighting (C405.2.4)
- Sidelit zones on 1st floor above grade in Group A-2 & Group M occupancies
- LPW is less than LPA calculated in equation 4-9

Required in:

- Spaces with >150W of general lighting within sidelit zone (C405.2.3.2)
- Spaces with >150W of general lighting within toplit zone (C405.2.3.3)

Specific application controls

C405.2.4

Specific application controls

- Controlled separately from general lighting in the space
- Sleeping units automatic off of lighting and plug loads within 20 minutes of unoccupancy

Primary exceptions:

- Sleeping units with key card controls do not require automatic off
- Spaces where patient care is directly provided does not require automatic off

Required in:

- Display and accent
- Lighting in display cases
- Supplemental task lighting
- Under cabinet / shelf lighting
- Lighting equipment for sales
- Lighting education or demonstration
- Plant growth
- Food warming

Exterior lighting controls

C405.2.6

Exterior lighting controls

- Exterior lighting automatically turn off when daylight is present
- Decorative lighting shall automatically turn off no later than 1hr after business close to 1hr before business open
- Non decorative lighting must be automatically reduced by >30% by
 - No later than midnight to 6AM
 - 1hr after business close to 1hr before open
 - When unoccupied for 15 minutes
- Shall include exterior time-switch control functions

Primary exceptions:

- Lighting for covered vehicle entrances / exits and parking structures
- Lighting controlled from within dwelling units

Required in:

- Parking lot
- Area lighting
- Site lighting

Additional efficiency options

C406.1

Additional efficiency packages

Comply with one or more of the following:

- More efficient HVAC (C406.2)
- Reduce lighting power (C406.3)**
- Enhanced Lighting Controls (C406.4)**
- Onsite supply of renewable energy (C406.5)
- Dedicated outdoor air system (C406.6)
- High-efficiency water heating (C406.7)
- Enhanced envelope performance (C406.8)
- Reduced air filtration (C406.9)

C406.4

Enhanced digital lighting controls

- Luminaires shall be continuous dimming
- Luminaires shall be individually addressable
 - Not more than four luminaires in a group allowed
- Not more than eight luminaires in a daylight zone
- Reconfigured by digital addressability
- Load shedding and individual user control in open offices
- Occupancy sensors shall be reconfigured digitally
- Construction documents include sequence of operations
- Functional testing (C408.3)

Functional testing

C408.3

Functional testing

A registered design professional must provide evidence that the lighting control system has been tested, calibrated, adjusted and is in proper working order with the construction documents.

Test requirements:

- Occupant sensor controls (C408.3.1.1)
- Time-switch controls (C408.3.1.2)
- Daylight responsive controls (C408.3.1.3)
- Documentation requirements (C408.3.2)

How Eaton control systems help meet IECC 2018:

	DLVP	Room Controller	WaveLinx	iLumin Plus	Fifth Light	LumaWatt Pro
C405.2.1	●	●	●	●	●	●
C405.2.1.1.2	●	●	●	●	●	●
C405.2.1.2			●	●	●	●
C405.2.2	●	●	●	●	●	●
C405.2.2.2			●	●	●	●
C405.2.2.3	●	●	●	●	●	●
C405.2.3	●	●	●	●	●	●
C405.2.4	●	●	●	●	●	●
C405.2.6			●	●	●	●
C406.4	●		●	●	●	●



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